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Admitted only in Maryland Admitted only in Virginia Practice Limited to Federal Agencies

November 8, 2004

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Art Unit 2832

Commissioner for Patents PO Box 1450 Alexandria, VA 22313-1450

Re:

U.S. Utility Patent Application

Application No. 10/664,404; Filed: September 17, 2003

Laminated Electro-Mechanical Systems

Inventors:

SHEN et al.

Our Ref:

2040.0410001

Sir:

Transmitted herewith for appropriate action are the following documents:

- 1. Information Disclosure Statement;
- 2. A listing of the cited references on Form PTO-1449 (10 pages);
- 3. Copies of the cited documents (AL1-AP1, AR1-AT1, AL2-AP2, AR2-AT2, AL3-AP3, AR3-AT3, AR4-AT4, AR5-AT5, AR6-AT6, AR7-AT7, AR8-AT8, AR9-AT9, AR10); and
- 4. One (1) return postcard.

It is respectfully requested that the attached postcard be stamped with the date of filing of these documents, and that it be returned to our courier. In the event that extensions of time are necessary to prevent abandonment of this patent application, then such extensions of time are hereby petitioned.

Sterne, Kessler, Goldstein & Fox PLL.C.: 1.100 New York Avenue, NW .: Washington, DC 20005 : 202.371.2600 f 202.371.2540 : www.skgf.com

Commissioner for Patents November 8, 2004 Page 2

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Jeffrey S. Weaver

Attorney for Applicants

Registration No. 45,608

DJF/JSW:apg Enclosures

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

SHEN et al.

Appl. No.: 10/664,404

Filed: September 17, 2003

For: Laminated Electro-Mechanical

Systems

Confirmation No.: 3195

Art Unit: 2832

Examiner: To Be Assigned

Atty. Docket: 2040.0410001

Information Disclosure Statement

Commissioner for Patents PO Box 1450 Alexandria, VA 22313-1450

Sir:

Listed on accompanying Form PTO-1449 are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98.

Where the publication date of a listed document does not provide a month of publication, the year of publication of the listed document is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the month of publication is not in issue. Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

Applicants have checked the appropriate boxes below.

- ☐ 1. Statement under 37 C.F.R. 1.704(d). Each item of information contained in this
 Information Disclosure Statement was cited in a communication from a foreign
 patent office in a counterpart application and this communication was not
 received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty
 days prior to the filing of this information disclosure statement.
- 2. Filing under 37 C.F.R. § 1.97(b). This Information Disclosure Statement is being filed within three months of the date of filing of a national application other than a continued prosecution application (CPA), OR within three months of the date of entry of the national stage as set forth in 37 C.F.R. § 1.491 in an international application, OR before the mailing date of a first Office Action on the merits OR before the mailing of a first Office Action after the filing of a request for continued examination under 37 C.F.R. § 1.114. No statement or fee is required.
- ☐ 3. Filing under 37 C.F.R. § 1.97(c). This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection, or Notice of Allowance, or an action that otherwise closes prosecution in the application.

a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1). b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2). c. Attached is our PTO-2038 Credit Card Payment Form in the amount of \$_____ in payment of the fee under 37 C.F.R. § 1.17(p). 4. Filing under 37 C.F.R. § 1.97(d) This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of a Final Rejection or Notice of Allowance, but before payment of the Issue Fee. Enclosed find our PTO-2038 Credit Card Payment Form in the amount of \$ in payment of the fee under 37 C.F.R. § 1.17(p); in addition: a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was cited

in a communication from a foreign patent office in a counterpart foreign

application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).

- b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).
- 5. The document(s) was/were cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the foreign office is provided in satisfaction of the requirement for a concise explanation of relevance. 1138 OG 37, 38.
- 6. A concise explanation of the relevance of the non-English language document(s) appears below:

Document AL1 (DE 10031569 A1) appears to describe a highly miniaturized relay in integrated circuit form, providing reliable operation and high isolation at high frequencies, including see-saw mounted plate alternately closing contacts on substrate when rocked. A copy of the English language abstract of document AL1 is enclosed as document AS7.

Document AM1 (DE 19820821 C1) appears to describe a electromagnetic relay with a rocker anchor. A copy of the English language abstract of document AM1 is enclosed as document AT7.

Document AL2 (EP 0780858 A1) appears to describe a miniature device to execute a predetermined function, in particular a microrelay. A copy of the English language abstract of document AL2 is enclosed as document AR8.

Document AM2 (EP 0869519 A1) appears to describe a planar magnetic motor and magnetic microactuator with such a motor. A copy of the English language abstract of document AM2 is enclosed as document AS8.

Document AO2 (FR 2572546 A1) appears to describe a bistable electromagnetic device for optical switching and matrix-configured optical switch using this device. A copy of the English language abstract of document AO2 is enclosed as document AT8.

Document AP2 (JP 4275519) appears to describe a optical matrix switch. A copy of the English language abstract of document AP2 is enclosed as AR9.

Document AL3 (JP 6251684) appears to describe a electromagnetic relay. A copy of the English language abstract of document AL3 is enclosed as document AS9.

Document AM3 (JP 54161952) appears to describe a photo switch. A copy of the English language abstract of document AM3 is enclosed as document AT9.

Document AP3 (WO 9927548) appears to describe a miniaturized flat spool relay. A copy of the English language abstract of document AP3 is enclosed as AR10.

7. Copies of the documents <u>AL1-AP1</u>, <u>AR1-AT1</u>, <u>AL2-AP2</u>, <u>AR2-AT2</u>, <u>AL3-AP3</u>, <u>AR3-AT3</u>, <u>AR4-AT4</u>, <u>AR5-AT5</u>, <u>AR6-AT6</u>, <u>AR7-AT7</u>, <u>AR8-AT8</u>, <u>AR9-AT9</u>, <u>AR10</u> are submitted herewith. In accordance with 37 C.F.R. § 1.98(a)(2), no copies of U.S. patents and patent application publications cited on the attached Form PTO-1449 are submitted.

■ 8.	Copies of the documents were cited by or submitted to the Office in an IDS that									
	complies with 37 C.F.R. § 1.98(a)-(c) in Application No, filed									
	, which is relied upon for an earlier filing date under 35 U.S.C.									
	§ 120. Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d).									

9. No copies of U.S. patents and patent application publications cited on the attached Form PTO-1449 are submitted in accordance with 1276 OG 55 because this application was filed after June 30, 2003.

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449, and indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

-M A.W___

Jeffrey S. Weaver Attorney for Applicants Registration No. 45,608

Date: 11 - 8-04

1100 New York Avenue, N.W. Washington, D.C. 20005-3934 (202) 371-2600

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AA1				DATE	NAME	CLASS	SUB-CLASS	FILING DATE
AC1 4,496,211 01/1985 Daniel AD1 4,570,139 02/1986 Kroll AE1 4,755,706 07/1988 Harnden, Jr. et al. AF1 5,016,978 05/1991 Fargette et al. AG1 5,048,912 09/1991 Kunikane et al. AH1 5,398,011 03/1995 Kimura et al. AI1 5,454,904 10/1995 Ghezzo et al. AJ1 5,472,539 12/1995 Saia et al. AK1 5,475,353 12/1995 Roshen et al. FOREIGN PATENT DOCUMENTS EXAMINER INITIAL DE 100 31 569 A1 02/2001 DE EXAMINER INITIAL DE 198 20 821 C1 12/1999 DE AN1 0452 012 A2 & A3 10/1991 EP AN1 0 685 864 A1 12/1995 EP OTHER (Including Author, Title, Date, Pertinent Pages, etc.) International Search Report for International Application No. PCT/US03/29254 mailed on March 05, 2004. AR 1 Richard P. Feymann, "There's Plenty of Room at the Bottom", December 29, 1959, pp.1-12 internet Source: http://222.zyvex.com/nanotech/feynman.html.		AA1	4,065,677	12/1977	Micheron et al.			
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AL1 DE 198 20 821 C1 12/1999 DE 0 452 012 A2 & A3 10/1991 EP 0 685 864 A1 12/1995 EP 0 709 911 A2 05/1996 EP OTHER (Including Author, Title, Date, Pertinent Pages, etc.) International Search Report for International Application No. PCT/US03/29254 mailed on March 05, 2004. AR 1 Richard P. Feymann, "There's Plenty of Room at the Bottom", December 29, 1959, pp.1-12 Internet Source: http://222.zyvex.com/nanotech/feynman.html. E. Fullin, J. Gobet, H.A.C. Tilmans, and J. Bergvist, "A New Basic Technology for Magnetic Micro-Actuators", pp. 143-147.	INITIAL					CLASS	SUB-CLASS	TRANSLATION
AM1 AN1 O 452 012 A2 & A3 I 10/1991 EP O 685 864 A1 I 12/1995 EP OTHER (Including Author, Title, Date, Pertinent Pages, etc.) International Search Report for International Application No. PCT/US03/29254 mailed on March 05, 2004. Richard P. Feymann, "There's Plenty of Room at the Bottom", December 29, 1959, pp.1-12 Internet Source: http://222.zyvex.com/nanotech/feynman.html. AS 1 E. Fullin, J. Gobet, H.A.C. Tilmans, and J. Bergvist, "A New Basic Technology for Magnetic Micro-Actuators", pp. 143-147.		AL1	DE 100 31 303 A1	02/2001				No
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AO1 AP1 O 709 911 A2 O5/1996 EP OTHER (Including Author, Title, Date, Pertinent Pages, etc.) International Search Report for International Application No. PCT/US03/29254 mailed on March 05, 2004. AR 1 Richard P. Feymann, "There's Plenty of Room at the Bottom", December 29, 1959, pp.1-12 Internet Source: http://222.zyvex.com/nanotech/feynman.html. E. Fullin, J. Gobet, H.A.C. Tilmans, and J. Bergvist, "A New Basic Technology for Magnetic Micro-Actuators", pp. 143-147.		AN1	0 402 012 / L d / lo	10,1331		4 4 1	W.	No
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AR 1 Richard P. Feymann, "There's Plenty of Room at the Bottom", December 29, 1959, pp.1-12 Internet Source: http://222.zyvex.com/nanotech/feynman.html. E. Fullin, J. Gobet, H.A.C. Tilmans, and J. Bergvist, "A New Basic Technology for Magnetic Micro-Actuators", pp. 143-147.								
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	F	ORM P	TO-1449		FIRST NAMED INVENTOR						
INFORM	MATION	DISCL	OSURE STA	TEMENT	Jun Shen FILING DATE		ART UNIT				
<u> </u>					September 17, 2003 2832						
				U.S. PA	TENT DOCUMENTS						
EXAMINER			UMENT	DATE	NAME	CLASS	SUB-CLASS	EILING DATE			
INITIAL	AA2	NUM 5.55	7,132	09/1996	NAME Takahashi	CLASS	30B-CLA33	FILING DATE			
				05/1997	Ho et al.						
	AB2		9,918								
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	AD2	5,78	4,190	07/1998	Worley						
	AE2	5,81	8,316	10/1998	Shen et al.						
	AF2	5,83	8,847	11/1998	Pan et al.						
	AG2	5,84	7,631	12/1998	Taylor et al.						
	AH2	5,89	8,515	04/1999	Furlani et al.						
	Al2	5,94	5,898	08/1999	Judy et al.						
	AJ2	5,98	2,554	11/1999	Goldstein et al.						
	AK2	6,01	6,092	01/2000	Qiu et al.						
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	AL2	1078	0 000 AT	00/1997		1		No			
_	AM2	0 86	9 519 A1	10/1998	EP			Yes No			
	AN2	0 88	7 879 A1	12/1998	EP			Yes No			
	A02	2 57	2 546	05/1986	FR			Yes No			
	AP2	4-27	5519	10/1992	JP			Yes No			
	JAFZ		OTHER (I	ncluding Autho	or, Title, Date, Pertinent P	ages, ef	tc.)	110			
	AR	2	Jack W. Ju	dy and Richard 1997, Journal o	S. Muller "Magnetically Act of Microelectromechanical s	tuated, A	Addressable Mici				
	AS	2	Solid-State Conference (Download	Ezekiel JJ Kruglick and Kristofer SJ Pister, "Project Overview: Micro-Relays", Tech. Digital Solid-State Sensor and Actuator Workshop, 1998, Hilton Head 98 and 19th International Conference on Electric Contact Phenomena, Nuremberg, Germany, Sept. 1998 Downloaded from Internet Source: http://www-psac.eecs.berkeley.edu/Kruglick/relays/relays.html, on July 12, 1999) 2 pgs.							
	AT	2	Characteriz	zation", Tech. D	ristofer S.J. Pister, "Bistabl igital Solid-State Sensor ar al Conference on Electric C gs.	nd Actua	tor Workshop, H	ilton Head,			
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···································	AA3	6,01	6,095	01/2000	Herbert				
-	AB3	6,02	8,689	02/2000	Michalicek et al.				
	AC3	6,07	8,016 06/20	06/2000	Yoshikawa et al.				
	AD3	6,08	4,281	07/2000	Fullin et al.				
	AE3	6,09	4,293	07/2000	Yokoyama et al.		-		
	AF3	6,09	4,116	07/2000	Tai et al.				
	AG3	6,11	5,231	09/2000	Shirakawa				
	AH3	6,12	4,650	09/2000	Bishop et al.				
	Al3	6,14	3,997	11/2000	Feng et al.				
	AJ3	6,16	0,230	12/2000	McMillan et al.				
	AK3	6,29	7,072 B1	10/2001	Tilmans et al.				
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	AL3	6-25	1684	09/1994	JP			Yes No	
	AM3	54-1	161952	12/1979	JP			Yes No	
	AN3		97/39468	10/1997	PCT			Yes No	
	AO3		98/34269	08/1998	PCT			Yes No	
	AP3	wo	99/27548	06/1999	PCT			Yes No	
					hor, Title, Date, Pertinen				
	AR	<u>3</u>		9, IEEE Journ	liver Brand, "Magnetic Mic al of Microelectromechani				
	AS	3	"P10D Electricity & Magnetism Lecture 14", Internet Source: http://scitec.uwhichill.edu.bb/cmp/online/P10D/Lecture14/lect14.htn, January 3, 2000, pp.1-5						
					Latching to 5-relays SPD	T DC TO C	Band", Series F	RF 341, product	
	AT	<u>3</u>	miormation	r irom Teleayr	ne Relays, 1998.				
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	AR	4	M. Ruan e 15, 2001),	t al., "Latching Copyright 20	g Microelectromagnetic 01 Elsevier Science B.\	: Relays" , Ser V., pages 346	nsors and Actuato				
Xi-Qing Sun, K.R. Farmer, W.N. Carr, " A Bistable Microrelay Based on To Multimorph Cantilever Actuators", 11th Annual Workshop on Micro Electric Systems, Heidelberg, Germany, IEEE, January 25-29, 1998, pp. 154-159.											
	AT	4	William P. Taylor and Mark G. Allen, "Integrated Magnetic Microrelays: Normally Open, Normally Closed, and Multi-Pole Devices", 1997 International Conference on Solid-State Sensors and Actuators, IEEE, June 16-19, 1997, pp. 1149-1152.								
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	AR	<u>5</u>	Micromach		r Brand, and Mark G. A , Journal of Microelectr						
	AS	<u>5</u>			ully-Packaged Electromagnetic Microrelay", Proc. MEMS '99, Orlando, 1999, copyright IEEE 1999, pp. 25-30.						
	АТ	<u>5</u>	http://home	e.earthlink.ne crorobots and	Scaling of Micromechar t/-trimmerw/mems/scal Micromechanical Syst 3, September 1989, pp	e.html on Janu ems by W.S.N.	ary 3, 2000 (ada Trimmer, Senso	pted from			
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	AR	Joh Usir	n A. Wrigh ng MEMS	t and Yu Technolo	-Chong Tai, "Micro-N gy", Proceedings: 46 13-1 to 13-4.	Miniature Electro	magnetic Switche					
	AS	Bru	shless Mot	or Comn	u-Chong Tai and Gerald Lilienthal, "A Magnetostatic MEMS Switch for D Commutation", Proceedings Solid State Sensor and Actuator Workshop, , June 1998, pages 304-307.							
	АТ	John A. Wright, Yu-Chong Tai, and Shih-Chia Chang, "A Large-Force, Fully-Integrated MEMS Magnetic Actuator", Tranducers '97, 1997 International Conference on Solid State Sensors and Actuators, Chicago, June 16-19, 1997.										
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	A07							Yes No
	AP7							Yes No
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	AR	<u>7</u>	Multilevel N	deander Magn	lark G., " A Fully Integetic Core, 1992 IEEE Head Island, South C	, Solid-State \$	Sensor and Actua	tor Workshop,
			English-La	nguage Abstra	ct of DE 10031569, p	oublished Feb	ruary 1, 2001, 1 p	age.
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	AS	9	English-La	inguage Abs	tract of JP 6251684, pu	ıblished Septeml	oer 9, 1994, 1 p	age.		
	English-Language Abstract of JP 54161952, published December 22, 1979, 1 page. AT 9									
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